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ANNUAL REPORT

OF

THE DIRECTOR

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT HARVARD COLLEGE

TO THE

PRESIDENT OF HARVARD COLLEGE

FOR

1940-1941

CAMBRIDGE, U. S. A.
PRINTED FOR THE MUSEUM
1941

PUBLICATIONS

OF THE

MUSEUM OF COMPARATIVE ZOÖLOGY

AT HARVARD COLLEGE

The BULLETIN and MEMOIRS are devoted to the publication of investigations by the Staff of the Museum or of reports by specialists upon the Museum collections or explorations.

Of the BULLETIN, Vols. I to LXXXVIII, No. 5 has appeared and of the MEMOIRS, Vol. I to LVI.

These publications are issued in numbers at irregular intervals. Each number of the Bulletin and of the Memoirs is sold separately. A price list of the publications of the Museum will be sent upon application to the Director of the Museum of Comparative Zoölogy, Cambridge, Massachusetts.

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REPORT OF THE DIRECTOR
1940–1941

To the President of Harvard College:

Sir:—

During the year two persons died who for a very long time had played important parts in the history of the Museum.

Samuel Henshaw, born January 29, 1852; died February 5, 1941. His long period of service in various capacities has been reviewed with marked sympathy by Robert Tracy Jackson (SCIENCE, April 11, 1941, Vol. 93, No. 2415, pp. 342–343).

The other person was James Henry Blake (born July 8, 1845; died July 20, 1941), whose career really began when he accompanied Professor Louis Agassiz as artist on the Voyage of the Hassler in 1871 and from that long time ago until but recently the exquisite beauty of his paintings and drawings have illustrated many of the Bulletins and Memoirs of this Museum. He was the last surviving person who was either a student or employee of Louis Agassiz, and he was both. Interested in whaling as he was for all his life, he accumulated a great mass of photographs, drawings, measurements, newspaper clippings, as well as books, concerning whales. All these, with the accumulated memorabilia of his long association with the Museum, he bequeathed to our library at his death. Thus he left us everything which he had and which he valued most. Mr. Henshaw bequeathed his priceless collection of books to the Bodleian Library at Oxford.

One of the most enduring satisfactions which has come to me since taking charge of the Museum, has been the building up of palaeontological exhibits which are not only scientifically significant and useful for teaching purposes but inherently beautiful. Securing the material has been relatively simple but preparing it for display is quite another matter and the reason that our display, although limited compared to that of other museums, is, mount for mount, infinitely superior, is due to just one man. Mr. George Nelson has reached his fortieth year of service to this institution and it certainly behooves me to take cognizance of what is owing to him. Although his handiwork is to be seen in many directions, the palaeontological material is by far the most outstanding. When I quote what Professor William B. Scott of

Princeton wrote me, after I mentioned this anniversary the other day, I think it will be recognized that I can cite no higher authority.

Doctor Scott wrote: "I have learned with much interest the fact that this year is the fortieth anniversary of Mr. Nelson's connection with the Museum of Comparative Zoölogy; please give my hearty felicitations to Mr. Nelson on having completed so long a term of faithful service to Science and express to him my hope that he has many more years to carry on his most useful work.

"However I think that you are the one to be congratulated on this occasion, to have had so long a cooperation from so skilful an assistant. I have greatly admired his work in the preparation of fossil vertebrates some examples of which I consider to be remarkable instances of skill and patience. In particular the taking apart and reassembling of the mashed Coryphodon skull has always seemed to me a semi-miraculous piece of work and the mounting of the little skeleton of the White River dog, Pseudocynodictus, is especially successful. 'More power to his elbow.' "

Beside the dog Doctor Scott has mentioned, the Ophiacodon seems to me perhaps the choicest specimen that has ever been added to this collection. The remounting of the Smilodon and the Dire Wolf from Rancho La Brea have made these specimens things of beauty indeed.

Doctor Darlington records the transfer of custody of the Harris collection to this Museum for safe keeping. The obvious call for the Boston Society of Natural History to turn its meagre resources towards popular education, rather than to continue to compete with this Museum in a strictly scientific program, while by no means universally approved, is nevertheless inevitable and on the whole desirable. Whether we will purchase this collection for cash or whether we shall supply technical aid by members of our staff to develop the new program, or do both, remains to be decided upon. The collection, however, is at last where it really belongs.

During the last six months and rather against my better judgment, I have asked the several curators to explore the steps which might be taken to place the types and other specially valuable specimens so that they might be more readily moved in the event of this neighborhood being subjected to an aerial bombardment. Recommendations concerning each department indicate, naturally, various degrees of difficulty but at least the matter has been given consideration and

recommendations are on file and it is clear that a very large proportion of our most valuable possessions could be moved at short notice. Happily, at the moment, the necessity seems distinctly remote and I feel a little guilty when I consider the possible waste of time of which I have been the cause.

Doctor Romer has mentioned the fact that our fossil deposit in Gilchrist County in Florida is the most important Mesozoic site in the eastern United States. It is indeed a veritable, I was about to say, Pandora's box, but perhaps a better simile would be Jack Horner's pie for, aside from the extraordinary novelties which my companion Doctor White has described from time to time, the list could be enormously increased were it advisable to give names to what we know will turn out to be many more new forms when we find more or better preserved material. I estimate that it will be well worth while to continue for certainly two years and possibly a longer period. Conditions of heat and rainfall limit the time when excavation may be carried on. Owing to ill health I was unable to follow the work at the Thomas Farm day by day this year but I was able to visit the site in April just before I returned to Boston.

I was at Soledad as usual for the month of February.

This year the number of current research projects is naturally reduced, compared to years past, since, of course, the stream of accessions has, to a great extent, dried up. This is not as much of a cause for sadness as might at first appear. We have an opportunity to put our collections in order and catch up on our publication program which is very welcome and while, of course, it will be tragical if this period lasts too long, nevertheless, the Museum will be much the better for it.

The reorganization of the collection of fishes presents particular difficulty on account of the enormous bulk of material which has got to be handled to determine just how much of it is worth preserving and how this may best be done. Returning to a pursuit which was a source of great pleasure to me many years ago, I have embarked on a study of our pediculate fishes. In this group, of course, there is no material to be discarded and a number of extremely interesting and significant specimens have been found. I may mention, for example, a specimen of *Paraceratias mitsukurii*, the type of a deep sea fish which was described by Professor Tanaka of Tokyo while it was in the possession of Allan Owston, a well known dealer in zoological material,

once resident in Yokohama. Mr. Agassiz bought this specimen in 1910. At this period Garman had begun to work on sharks and Tanaka's type was put away in the collection without a label. Its identification was made possible by the fact that attached to the specimen was a wooden tag bearing what turned out to be Owston's original number and, fortunately, this number was cited by Tanaka in his original description. The enjoyment of running down histories of this sort is an example of the spice which whets the appetite of an omnivorous pack rat if ever it tends to become jaded from time to time.

It is impossible to view the coming year without a good deal of trepidation. Increased taxes are going to make it difficult or impossible for the Museum to expect to secure the private assistance which it has received in the past and which has supported, in a very large degree, exploration and publication, as well as the purchase of equipment to care properly for the expanding collection. All the structural changes in the building and the storage cases which have been built and the glassware which has been purchased, have been privately financed, to say nothing of innumerable collections.

Fortunately there seems to be no reason why we may not continue to pay the pittances which we call salaries to those of our staff who are not in a financial position to donate their services. In the trying years which we inevitably face, I only hope that the Museum may be served as devotedly as it has been in the past and that the greatly increased patience which has got to be forthcoming will be there when it is called for. Since I believe that no other museum has ever been served by a staff of such completely selfless devotion, I have a feeling that, after all, all may be well.

REPORT ON ECHINODERMS

By Hubert Lyman Clark

So far as the Department of Marine Invertebrates is concerned, the past year has been one of continued progress uninterrupted by any extraordinary events. The reports of Doctors Deichmann and Chace speak for themselves but the Curator is very glad of the opportunity

to express his sincere appreciation of their notable cooperation and unfailing helpfulness. To Mrs. Pattee also, who as Research Assistant has developed exceptional curatorial ability, sincere thanks are due for her skill and ingenuity in incorporating the unusually numerous accessions in the collection of Echinoderms, without necessitating any increase in the number of tier-cases which it occupied.

The Curator's time has been given very largely to the work of completing studies on the Echinoderm fauna of Australia. While much progress has been made, the number of species to be included in the final report is so much larger than was anticipated, there still remains much to do. Perhaps it may be justifiable to add that world conditions have interrupted and held up correspondence with Australia to such an extent that important assistance from our helpful colleagues there has been annoyingly delayed.

The accessions of the year were more than double those of last year, reaching a total of 5973 specimens—a figure exceeded in recent years only by that of 1935–36, when large Australian collections were incorporated. The number of Echinoderms now in the collection exceeds 102,000, representing 3112 species of 753 genera. We have also a considerable amount of material suitable for exchange, not incorporated in the catalogued collection but readily available if needed for study or any other purpose. About nine-tenths of the accessions came from the "Atlantis" Cuban collections, to which reference has been made in the reports of the two preceding years. The University of Havana, through Professor Aguayo, has generously insisted on our keeping the great bulk of that valuable material, which included many rare species oftentimes in long series.

Dr. White, Mr. Clench, Mr. Schroeder and Dr. Deichmann of the Museum Staff have made gifts to the Echinoderm collection of 270 specimens, including two species new to it. Dr. William Beebe presented 163 ophiurans, one species being new to us. Mr. E. K. Ricketts gave 61 sea-urchins of 15 species from the Gulf of California, Mr. Tucker Abbott brought 61 sea-urchins of 2 species from Hawaii and Mr. M. Doty presented us with 20 holothurians from the Oregon coast. Mr. James Miller has continued his giving of unusually interesting individual specimens from the eastern coast of the United States, having donated 15 during the year. Mrs. Emilie W. Teeter, through Miss Beatrice Winser of the Museum of Newark, N. J., gave us a remark-

able, hexamerous and very large specimen of an uncommon sea-star (*Poraniomorpha spinulosa*) from Bailey Island, Maine, and Dr. Hayato Ikeda presented a remarkable sea-urchin from Japan (*Compsocidoris pyrsacantha*) recently described by him. Other donors of interesting material are Senorita Irene Bernasconi, Mr. Tom Burch and Mr. Fred Ziesenhenne. To all of the above mentioned donors our sincere thanks are herewith extended.

REPORT ON OCEANOGRAPHY

By Henry B. Bigelow

The papers on sharks of the genus Mustelus and on Phytoplankton of the Gulf of Maine, mentioned in last year's report, have been published; also a short paper, in collaboration with Mr. Schroeder, defining a new genus of Scyliorhinid sharks.

In the autumn Mr. Schroeder and I commenced work on a descriptive revision of the sharks of the western North Atlantic, to which most of my time has since been devoted. The Museum's collection of this group from various seas is broadly representative. Loans, also, of specimens have been received from the American Museum of Natural History, from the United States National Museum, from the Museu Nacional do Rio de Janeiro, and from the Museum of Stanford University, for which our thanks are due to Mr. John T. Nichols, to Dr. Leonard Schultz, to Dr. Heloisa Alberto Torres, and to Dr. George S. Myers. The plan is to illustrate each species adequately. Thanks to an allotment for research contributed by the Department of Biology, we have been able to engage the well known zoological artist Mr. Eugene N. Fischer on a part time basis, and he has so far completed ninety line drawings. The same allotment has also provided for a part time assistant to continue sorting of the "Dana" siphonophores, but work on this report awaits receipt of additional lots from Copenhagen, which, under present conditions, may be indefinitely delayed.

REPORT ON PHYSICAL OCEANOGRAPHY

By Columbus O'D. Iselin

During the past year practically my entire time has been devoted to work for the National Defense Research Committee. Very little field work in physical oceanography in its ordinary sense has been possible. During the spring months the "Atlantis" did make four biological surveys of the Georges Bank area and in July under Mr. Stetson's direction some work on submarine geology was carried out, but the remainder of her time has been devoted to various governmental projects. Thus at present there are very few developments in physical oceanography about which a report can be made.

REPORT ON ENTOMOLOGY

By Nathan Banks

The end of another year finds the collections of this department richer and better arranged than ever.

The additions have been numerous and helped every order. The largest is that made by Mr. N. S. Scrimshaw of about ten thousand moths and other insects taken at light on Barro Colorado Island during July and August. This will complement the Bates collection, made during other months of the year. Part of this is already pinned and some spread, and several hundred sent to Professor Forbes for study. Mr. R. C. B. Bartsch presented his fine collection of Catocala, about one thousand specimens, and Mr. and Mrs. J. L. Sperry gave us about 140 named western moths, mostly new to the collection, and 170 Neuropteroid insects. Mr. L. H. Snyder added 38 named Corean butterflies to those previously sent us. Mr. A. E. Brower brought us 36 named species of moths in 93 specimens, mostly new to our collection and about 80 Neuroptera; he also corrected some mistakes in the collection. Mr. E. Halvorsen sent a few Californian Lepidoptera.

Doctor J. Bequaert added nearly 600 Hymenoptera, Diptera and Hemiptera, some from Brazil, others from Africa, but mostly from the

Western States. Professor C. T. Brues gave 43 vials of Oriental termites; numerous Arachnids and Myriopods, mostly Oriental, and about 400 insects, partly from Canada.

From Prof. T. D. A. Cockerell we received two more lots of named bees, including cotypes of 29 species. Dr. N. A. Weber gave us cotypes of 14 species of neotropical ants.

Mr. G. Fairchild brought over 300 miscellaneous Panamanian insects, and Mrs. D. Frizzell sent 70 specimens from Peru. Dr. D. E. Hardy gave paratypes of eleven Pipunculidae and Bibionidae; Prof. R. H. Painter sent paratypes of twelve Bombyliidae and Apioceridae, and Dr. C. S. Brimley gave us a few Larridae, some new to the collection.

To Dr. E. M. Walker we are indebted for two specimens of Grylloblatta, and to Prof. F. B. Isely for 140 Texan Orthoptera, several fine species. By purchase we obtained 180 Neuroptera from Idaho, 200 Neuroptera from Manchuria, 200 Neuroptera, Hemiptera, and Hymenoptera from Paraguay, 100 Hymenoptera and Hemiptera from San Domingo, 450 mostly Hymenoptera from Australia, and 100 Neuroptera and Diptera from South India. Many useful duplicate specimens, sometimes paratypes, have been retained by the Curator as he studied various collections sent for identification. The Curator added several hundred local insects. Mr. H. F. Loomis, in returning some West Indian Myriopods, included some others as gifts.

The principal addition to the collection of spiders was a fine lot of 350 specimens, mostly small species, purchased from H. A. Beatty of St. Thomas, Virgin Islands.

Prof. A. M. Chickering gave us 27 vials of named spiders from Panama, a most useful lot.

About 200 spiders from northern Mexico were purchased from H. Hoogstraal, and a small collection from near Puerto Plata, San Domingo, was bought from Mr. D. Hurst.

Miss Christine Wilton gave small lots from Arkansas and North Carolina, and Dr. A. S. Archer several interesting species from Alabama. From Dr. W. J. Gertsch, Mr. Ira La Rivers, Prof. W. Barrows, Dr. J. Bequaert, and Dr. Phil Rau we obtained various other spiders.

As noted in the report for last year the boxes of the Fall collection of Lepidoptera have become a major factor in arranging exotic insects. The collection of ants, over 50,000 pins, was transferred to these Fall

boxes and some other Schmitt boxes, and arranged geographically (as our other insects). The 260 standard drawers thus emptied are now being used to arrange the exotic Orthoptera, Diptera, Hymenoptera, and Hemiptera, a work that will continue for a year or two or as long as there are available boxes. Nearly 100 boxes will be used to extend the exotic Orthoptera. Mr. Bartsch has inserted the Fall Lepidoptera in the collection; rearranged the genus Catocala, incorporating his own collection; pinned and spread the Sudan butterflies, recently received, and pinned and sometimes spread about two thousand of the additional moths from Barro Colorado. He has also put the Microlepidoptera in the arrangement of the new McDunnough Catalogue. There is great need for another cabinet and boxes for the Lepidoptera; much of the recently mounted material is still in temporary paste-board boxes.

The forty new boxes made from larger drawers were quickly lost in the collection.

In the alcoholic material a student transferred larvae of many Coleoptera and Lepidoptera to upright vials, and the collection of Phalangida was partly assorted to genera.

As usual the Curator has pinned several thousand insects, labelled and sorted them, and also written and placed on specimens several thousand species labels.

The student also attended to filing of letters, and index cards, fumigating much of the collection, and doing some transferring and labelling.

Mr. H. Clench has arranged certain groups of African Lepidoptera.

The Curator has finished two papers, one on the Chrysopidae of Central America, the other on our species of Tachytes, both having been in preparation for several years. Others on Neuroptera or Psammocharidae are in press or in preparation.

Miss Bryant has a paper in press on some spiders from the Virgin Islands, others on spiders from Puerto Rico and Hispaniola are in preparation.

Publications by others on material loaned to them for study have added greatly to the value of the collection, and others have determined specimens without publication. Prof. Brues has published on trilobite larvae in our collection, and added an Oriental species; Dr. James on Stratiomyiidae, Dr. Townes on Chironomidae, Prof. Hull

on Syrphidae, Dr. Cazier in Apioceridae, Prof. Painter in Bombyliidae, Dr. Hardy in Pipunculidae, Dr. Gurney in Blattidae, Dr. Bequaert in Vespidae, Dr. Walley in Ichneumonidae, Prof. Mickel in Mutillidae, and Prof. Pate in Crabronidae.

A second paper by Prof. Forbes on the Barro Colorado moths is nearly ready for publication.

Types of insects now catalogued number 25707.

The visitors were J. G. Bradley, Diptera; H. A. Scullen, Philanthidae; Miss E. Fisher, Mycetophilidae; G. Erickson, Braconidae; J. Hanson, Perlidae; D. Denning, Trichoptera, H. H. Ross, Trichoptera; W. D. Murray, Sphecidae; H. G. Knutsen, Noctuidae; H. E. Evans, Psammocharidae; H. K. Townes, Ichneumonidae; A. E. Brower, moths; H. H. Shepard, Hesperidae; M. R. Smith, ants; C. P. Kimball, moths; W. T. M. Forbes, Panama moths; and Dr. J. W. Chapman, Oriental ants. Dr. Chapman spent four months preparing a catalogue of Oriental ants and getting together specimens for a paper on new species from the Philippines.

Dr. A. M. Chickering, as usual, was here for several weeks working on his unrivalled collection of Panama spiders, describing numerous new species.

Dr. B. K. Kaston studied types of certain spiders for his paper on Connecticut spiders.

REPORT ON COLEOPTERA

By P. J. Darlington, Jr.

The insect collection of Thaddeus W. Harris (1795–1856) was transferred (as a deposit) from the New England Museum of Natural History to the M. C. Z. in April, 1941, and placed in the Leconte-Fall Room, together with Harris's notebook and certain MS. lists and data. This is probably the oldest existing general collection of North American insects. Many specimens are broken or damaged by old dermestid work (some Orthoptera were completely destroyed long ago), but the bulk of the material is in fair condition considering its age. There was no damage during the transfer to the M.C.Z. The collection contains

types of probably at least 200 insects, including numerous Coleoptera, described by Say, Harris, and others.

Other Coleoptera were received during the year as gifts from or through the kindness of Mr. R. T. Abbott (Pacific region), Prof. Nathan Banks, Mr. J. I. Beaulne, Prof. J. Bequaert, Dr. W. J. Brown (European species introduced in eastern Canada), Prof. C. T. Brues (about 500 good North American beetles), Mr. J. Carabia (Cuba), Dr. O. L. Cartwright (paratypes North American Scarabaeidae), Mr. W. J. Clench (Hawaiian material), Mr. Harry Clench, Dr. K. W. Cooper (Barro Colorado Carabidae), Mr. Charles F. Doucette, Dr. David Fairchild, Mr. Graham Fairchild (50 Neotropical beetles), Mr. Richard Foster (Bahamas), Mr. J. W. Green (paratypes of Cantharis), Mr. Harry Hurst (Dominican Republic), Mr. M. C. Lane (paratypes of Elateridae), Mr. E. R. Leach (Lucanidae), Mr. Alan Nicolay, Mr. E. D. Quirsfeld, Mr. N. S. Scrimshaw (Barro Colorado), Prof. Charles Seevers (paratypes of Limulodes), Mr. Henry Seton, Mr. John G. Thorndike, Mr. Joseph F. Wright (paratypes of Loxandrus), and Mr. Frank Young (paratypes of Dytiscidae). Special exchanges were completed with Mr. Bernard Benesh (Lucanidae), Mr. David Rockefeller (Carabidae), Mr. Wm. Spector (exotic Carabidae), and Mr. R. L. Wenzel (Histeridae), and Mr. A. Bierig sent a good lot of Costa Rican Carabidae toward an exchange. Five lots of exotic Carabidae, totaling about 1,300 specimens, were purchased, from Manchoukuo, Australia, West Indies, Brazil, and Paraguay.

Eleven loans were made during the year. Some old loans were returned, but others are still carried over. In all, 20 persons had Coleoptera on loan from us Aug. 1, 1941—a total of 9,662 specimens.

Much work has been done this year on our general collection of North American Coleoptera: combining and arranging in trays material from the old M. C. Z. collection and from the more recently received Bowditch, Gehring, Bolster, Eddy, and Darlington Collections, and from other recent accessions. (The Leconte and Fall Collections and certain others are, of course, kept separate.) We have been fortunate in having, part time, the skillful assistance of Mr. Floyd Werner and Mr. Fred Solana. Mr. Werner has arranged the North American Chrysomelidae and weevils, exotic Hispids, and many European beetles. Mr. Solana has transferred the North American Cerambycidae to trays and taken care of many other difficult tasks.

Mr. Benesh, during his visit in September, sorted and arranged all our Lucanidae of the world, putting our collection of the family in first class shape. For my part, I have transferred the E. D. Harris North American Cicindelidae from Schmitt boxes to trays and combined them with our other North American material, to make one of the best collections of North American tiger beetles in existence; have finished arranging the North American Dytiscidae and started on the Scarabaeidae; have arranged a number of large exotic Prionids and Scarabaeids; and have sorted and put away many exotic beetles, especially from the Eddy Collection. Also I have started to index the Fall Collection. By way of research, I have worked up collections of Carabidae from Jamaica (for U. S. Nat. Mus.) and the Cayman Islands (for Oxford) and have prepared manuscripts on the Carabid faunas of Jamaica and the Caymans; have sorted and partly identified a collection of many thousand North American Carabidae belonging to Mr. David Rockefeller; and have continued studies on zoogeography and on the Carabid faunas of mountains and islands.

Persons who have visited the museum to do taxonomic work on Coleoptera include Mr. Vernard Benesh (Lucanidae), Prof. J. C. Bradley (Coleop. of northeastern U. S.), Mrs. Doris Blake (Chrysomelidae), Dr. O. L. Cartwright (Scarabaeidae), Mr. C. A. Frost (various), Mr. E. R. Leach (Lucanidae, etc.), Miss E. W. Mank (various), Dr. Carl Parsons (Nitidulidae), Mr. E. D. Quirsfeld (Elateridae), Mr. R. L. Wenzel (Histeridae), and Mr. Frank Young (Dytiscidae).

REPORT ON MAMMALS

By Glover M. Allen

A great part of the year's work has been expended in an effort to bring up to date the cataloguing of past accumulations and especially the preparing of skulls and skeletons of mammals, large and small, that have come in over past years but which, for one reason or another, have been set aside to await their turn. Considerable time has been expended in cleaning, labelling, and filing away such material, but al-

though much has been done, there is still some months' work ahead before we shall be nearly caught up. In all, some 420 specimens have been catalogued, chiefly new accessions; sixty-nine larger hides have been tanned, bringing our tanning nearly to a close for present purposes. To Mr. William H. Drury, Jr., high praise and thanks are due for his generosity in giving regularly of his time during the year in preparing labels for the individual hangers on which the tanned hides are hung in our new store room.

An outstanding event of the year is the receipt of a splendid modern binocular microscope with a full equipment of lenses, presented by the Gardner Peruvian Expedition, thus supplementing the collection made for the Museum in Peru in 1939 and supplying the laboratory with an instrument long needed. The generosity of Mr. George Peabody Gardner and his son is greatly appreciated.

Of student assistants we have had the help of Mr. Robert Broge regularly during the year. He has made great progress in the transfer of skulls from open trays to dust-proof pasteboard boxes, with typed labels on the covers, a course that will go far in keeping material clean in years to come. Through the skilled assistance of Mr. S. R. Inkley, another student, nearly all the many skins brought back in brine from Borneo by the Asiatic Primate Expedition, as well as others roughly prepared in the field, have been made up for cabinet specimens. Thanks are due also to Mr. James M. Sprague for help in painting black the glass of certain cases to keep out light.

There has been much use of the collections by those studying various groups of mammals. Twenty lots have been sent out on loan in addition to an equal number borrowed or consulted by staff and students for use in the building, especially by the Department of Palaeontology.

During the year Mr. Coolidge has continued his study of the primate collections brought back by his expedition to the East in 1937 and has organized exchanges with museums on the West Coast which he visited in March. He has also continued his interest in the International Wildlife Protection and is gratified by the progress of the Convention on Nature Protection and Wildlife Preservation in the American republics, in the development of which he has played an important part. In addition to this work, he has taken an active part in the American Defense Group, and is Treasurer of the Harvard section; he has been appointed by the Director the representative for the

Museum on an Inter-Museum Committee cooperating with the State Committee of Public Safety. At the Director's request he has also devoted much time from October to June in helping with problems of the New England Museum of Natural History where he was largely instrumental in the raising of further funds for the work there.

Mrs. Schevill has devoted much time to working out the indentity of our South American collections received in the last few years, including that brought back by the Gardner Peruvian Expedition, the Griswold collection, and the Clarke Macintyre collection. From a small collection sent for identification from Argentina, she has described a new species of Octomys. In addition she has spent much time in cataloguing and preparing fresh material, and in checking and respacing the collection of rodents.

The Curator in addition to other duties has prepared two papers on cetaceans, identified various bone collections for archaeologists, and occasional specimens for other persons. During the year Messrs. Tate, E. J. Hill, E. R. Hall, and C. C. Sanborn have been here for a few days each, looking up material.

A list of those who have donated specimens of mammals during the year and to whom thanks are due, follows:—Francis H. Allen (mink skull), Francis N. Balch (flying squirrel), Thomas Barbour (various collections), J. M. de la Barrera (Argentine rodents), Boston Society of Natural History (European skins), F. N. Chasen (alcoholic bat), Elton Clark (gray fox from Vermont), Dr. C. S. Coon (neolithic bones from North Africa), W. W. Dalquest (skins from Washington), W. B. Davis (deer skin and skulls from Texas), A. B. Fairchild (raccoons), E. G. Folk, Mrs. H. C. Grant (three-banded armadillo), M. M. Green (shrews), J. C. Greenway, Jr., (additional eastern specimens), Donald R. Griffin (a number of bats), Dr. H. B. Hitchcock (various bats), Dr. Edw. Holland (a mink skeleton from Maine), Edw. Mallinckrodt (skin and a skull of the Alaskan brown bear), R. H. W. Pakenham (mammals from Pemba Island), Dr. and Mrs. G. M. Phelps (leopard skulls), Dr. R. S. Palmer, (lemmings), G. H. Pournelle and Dr. Archie F. Carr, J., (Mexican mammals), W. K. Queen (wolverine skin), Charles E. Stearns, Wendell Taber (Martha's Vineyard shrew skulls), Dr. N. A. Weber (African shrew), Robert V. Witter (Colorado chipmunk), U. S. Biological Survey (Brown bear skull).

REPORT ON THE BIRDS

By James L. Peters

The year just passed has proved to be a record one for the small number of accessions. The causes are not far to seek, the war in Europe.

The total number of additions number just 701 specimens. Of these 104 Bolivian birds and 210 birds from Japan, Formosa, Bonin Island and Micronesia were obtained in exchange, 34 in four lots by purchase, 19 presented by Dr. Barbour and 331 the result of an expedition undertaken jointly by the Museu Paulista and the M. C. Z.

Progress on the card catalogue of the collection is rather slow, but 3573 birds were carded during the year.

A five section unit of the "small bird" type of storage space was constructed which has permitted a rearrangement of the Bulbuls, Swallows and Larks and released space for expansion of the terribly overcrowded Timalines. A twelve section unit of the "largest bird" type has also permitted the complete expansion and consolidation of all the gallinaeceus birds and Hawks. A consolidation of the Crows and Jays is in progress.

An important step was taken just before the close of the museum year in accordance with a vote passed by the Museum Faculty regarding the segregation of types, rare or extinct species, with the view of having them readily available for removal to safety in the event of hostilities. All types, therefore, were removed from their places in the collection and assembled in available cases in room 505. From the point of workability of the collection, this is a retrograde step, and it is a precaution which we may hope to be uncalled for.

The Staff, (except Mr. Griswold who has been on leave) remains the same. Mr. Greenway continues his researches on the status of certain rare species and his work on Hawaiian birds; Miss Porter and Miss Powning attend to the carding, cataloguing and expansion of the collection. Mr. Greenway's personal secretary, Mrs. Hambleton, has been most helpful to the department in many ways. My own activities are chiefly concerned with the Check-list of Birds of the World and general curatorial work.

Mr. Dillon Ripley, a graduate student, spent much time in studying

the East Indian birds in the collection in connection with his studies under Dr. Allen.

A list of types of birds described since the publication of Outram Bang's type list in 1930 has been prepared and Miss Porter has compiled a complete list of the zoological writings of Mr. Bangs. Mr. Loveridge and the Curator have completed the report on the birds collected on Mr. Loveridge's latest trip to East Africa in 1938–1939.

Nineteen loans, totalling 226 specimens, were made during the year; the prompt return of this material is very gratifying. In addition to identifying and comparing specimens submitted by ornithologists living at a distance the Staff is called upon at times to assist local amateurs in identifying birds that they may have seen and to pick out a few common birds to lend for the purpose of illustrating informal talks given by speakers at the Harvard Ornithological Club and the Nuttall Ornithological Club. Such loans are made for a period of twenty-four hours.

The American Ornithologists Union met in Cambridge and Boston 9–13 September 1940. At this time a number of visiting ornithologists availed themselves of the opportunity to visit the Bird Department.

REPORT ON BIRDS' EGGS AND NESTS

By Richard C. Harlow

Due to the pressure of work in the athletic department, I have been forced to limit my work on the collections to Saturday afternoons and the very early morning hours during the week. This, however, has enabled me to go over the collection and keep the specimens clean of mould and disease.

Of course, for the present, it will be impossible to carry out the wished for expansion in study material from Europe, Asia and Africa but it is hoped that some progress may be made in the South American collections in the near future.

REPORT ON THE MOLLUSKS

By W. J. Clench

Expeditions: Dr. and Mrs. David Fairchild collected a very large series of Mollusks in the East Indies during the Fairchild Garden Expedition (with Mrs. Anne Archbold on her junk yacht, the "Cheng Ho"). Over 1700 lots were obtained, both land and marine species from localities not only new to the Museum's collection but also from areas seldom or never collected at heretofore. This collection is especially rich in material from Halmahera, an island that has received but scant attention.

Mr. R. T. Abbott was invited to become a member of the Archbold Expedition during the investigation of the Fiji and Samoan Islands. Mr. Abbott joined the expedition at Suva, Fiji, in November 1940 and remained over in the Samoan Island until April, 1941. He made a very careful survey of the island of Tutuila studying both the land and the marine mollusk fauna. His collections fill a very decided gap in our Indo-Pacific series.

During the latter part of May and the early part of June of this year R. W. Foster and J. H. Huntington paid a visit to the Bimini Islands in the Bahama Archipelago. This short trip resulted in a very large collection of the land and marine shells most of which were collected alive. This expedition added materially to our distributional records as well as indicating a fair amount of difference in the marine mollusk fauna between these islands and the coast of Florida only 50 miles to the west.

I had the good fortune to receive a Yale-Bishop Museum Fellowship the past year for study in the Hawaiian Islands. I left Cambridge in the first of October 1940 and returned the latter part of April 1941. During my stay at the Bishop Museum, Honolulu, I devoted my time to the study of the Cyclophoridae, a family of land operculates that is widely distributed in Melanesia, Micronesia and a small portion of Polynesia. My studies were based upon the very rich collections contained in the Bishop Museum. My weekends were devoted to making collections of the local fauna, particularly the marine elements of which we are sadly lacking.

Besides the main materialistic advantages of seeing new country and studying, in the field, a totally new fauna, I had the rare pleasure of working with Dr. C. M. Cooke, Jr. and other members of his department and staff of the Bishop Museum in Honolulu. I am deeply indebted to Dr. and Mrs. Cooke and to Dr. Peter Buck, Director of the Bishop Museum, for innumerable kindnesses during my stay in the Islands.

Collections: Through the kindness of the Board of Trustees and the Director, F. L. DuMond of the Grand Rapids Public Museum, a very large and valuable collection of mollusks was received as a gift. This collection consisted of several private collections that had been given to the Grand Rapids Museum many years ago, the most noteworthy being that of W. H. DeCamp, J. W. Velie, R. J. Kirkland and Frederick Stearns.

During the past several years the policy of many small museums has definitely changed. Outgrowth of natural history societies and recipients of many private collections, these institutions are devoting more and more of their energies to public instruction by means of exhibits and lectures, particularly in the public schools. To this end, their scientific collections become a burden as they are neither useful for this type of instruction nor can the institutions afford the necessary curatorial staff to care for them. Many of their collections are of extraordinary value, containing as they often do type material and, perhaps of equal value, material gathered in the early days from territory now forever deprived of the original fauna and flora.

To this end, the Board of Trustees of the Grand Rapids Museum is to be highly commended for their willingness to part with collections of this sort, donating them to research institutions where they can be used and properly taken care of.

The Museum of Zoölogy at Ann Arbor, Michigan received the North American land and fresh water material, we received all of the foreign land and freshwater shells as well as all of the marine collection.

I had the pleasure of meeting Mr. D. Thaanum during my stay in Honolulu and passed many an enjoyable evening at his home going over his very extensive shell collection. With characteristic kindness he generously donated to us a very large series of his duplicates, many of which he had personally collected in the Hawaiian Islands from areas now devoid of native fauna. Many of the shells are from the type

series which enhance our already large and important Hawaiian collection.

A very important collection of South American land shells was purchased from W. Weyrauch. Several new species were included from his recent trips into various parts of Peru. These are now being worked up for publication.

General: Dr. H. D. Russell was in charge of the department and carried on the work during my absence very efficiently.

Dr. J. Bequaert continued his studies on the South American land shells and this portion of the collection has now been completely revised.

My thanks are due again to all members of the department staff for their continued interest and enthusiasm and to very many friends who continue to add to its growth by the donations of material or by giving their time to do the many tasks associated with the collection.

Though there is still a vast amount of unworked and uncatalogued material, this has now been sorted and arranged geographically so that specimens can readily be located regionally or systematically with but little effort. Such an arrangement speeds up the work on many problems and makes accessible all of the material that we possess at the time we have visiting specialists.

A resumé of the collection follows:

Number of accessions for the year	9,705
Catalogued entries in the collection	133,010
Number of species in the collection	27,128

REPORT OF THE RESEARCH CURATOR OF ZOÖLOGY

By Ludlow Griscom

As predicted in last year's report, the Museum's financial year was not only uneventful, but the general world war sharply curtailed various types of activity, and served to reduce expenditure to a noticeable degree. In this way it must be admitted that the financial stringency of the Museum's affairs was slightly alleviated. Unfortunately

for our budget, however, those funds where savings were possible, were chiefly the restricted ones for special purposes. The amount received in special gifts was reduced, but this was offset by the impossibility of various enterprises for which the gifts have annually been made. It is the unrestricted income of the Museum which is seriously inadequate, presenting problems which can be solved only by increased endowment.

My editorial work was again doubled, thanks to the continuation of Mr. Agassiz's gift. Bulletin vol. 87 was issued complete in 7 numbers. Volume 88 will be completed by the time this report is printed. One and three quarters volumes in a year is very different from the two to five years it used to take to complete a volume in former decades. Thanks to Mr. Agassiz we must now be the only large museum in the world not seriously in arrears in publication, with a long list of papers waiting for money to print them or forced to decline appropriate articles.

The Director permitted me to give a lot of time to the Harvard Group, American Defense, which I have served as head of the Information Committee, again greatly appreciating the cooperation of several Museum and many Harvard colleagues. Early last fall my work was greatly increased in several directions by the active cooperation and interest of one of the Government departments, and last winter I was called to Washington for half of several weeks to serve another department in an advisory capacity. Liaisons with other Defense organizations were established, and I went to New York for conferences with three groups working in collaboration with the Government.

Research work during the year was consequently confined to the continuation of active field work in Massachusetts in connection with various problems with birds in the Northeast. During the year my work for the National Audubon Society was made more official by being made a Contributing Editor to the magazine Bird-Lore (now the Audubon Magazine), and I am responsible for the development of a series of summary reports on birdlife from fifteen or more sections of the country. More time than ever was devoted to various local organizations, particularly the New England Museum of Natural History.

REPORT ON REPTILES AND AMPHIBIANS

By Arthur Loveridge

The past year has seen a further slight falling off in the number of specimens received and catalogued, this is reflected in the number of species—58 in all—which were new to the museum. Except for two collections—Mexican and African—still being worked on, everything has been tagged, labeled, card-indexed and incorporated.

Other institutions, the National Museum, American Museum of Natural History, California Academy of Sciences, Stellenbosch University, and individuals have submitted collections for identification with the result that a number of paratypes, and much desirable material, accrued to the Museum of Comparative Zoölogy.

Among the more important accessions was a further instalment of over 200 Peruvian specimens, donated by Mr. W. F. Walker and his son, which provided the types of *Stenocercus juninensis, taonae,* and other species described by Mr. Shreve. Dr. A. F. Carr's Mexican trip of 1940 resulted in the addition of *Chersodromus liebmanni,* a genus of snakes which has long been a desideratum. Dr. David Fairchild donated some interesting East Indian material collected by the Fairchild-Garden Expedition which included a topotypic *Typhlops o. olivaceus* that we lacked. Mr. R. H. W. Pakenham presented 83 reptiles and amphibians from Pemba Island which furnished the types of four new races. Messrs. R. Foster and J. H. Huntington donated a representative collection of the fauna of North Bimini Island that included a good series of an undescribed boa—*Epicrates striatus fosteri* Barbour.

Other donors to whom the Department is indebted for material, are: C. E. Altenburg, H. Babcock, T. Barbour, J. M. de la Barrera, D. Bishop, L. G. Carr, E. R. Dunn, E. Folk, J. C. Greenway, F. A. Houghton, A. Kidder, C. Parsons, O. Pearson, B. Shreve, W. Sharpe, J. R. Slater, C. H. Townsend, and R. V. Witter.

Ninety-seven specimens were received in exchanges carried through with seven museums in this country and the Union of South Africa, events abroad continuing to restrict this method of enriching our collections. Twenty-three loans were made to fifteen persons, representing eleven Universities or Museums. The largest single loan consisted

of 124 specimens of the genus Leptophis borrowed by a student at Michigan University Museum of Zoölogy a year ago.

A number of visitors have been to Cambridge for the purpose of studying some portion of the collection, among these were Miss Peterson, Mr. and Mrs. C. M. Bogert, Dr. and Mrs. A. F. Carr and Dr. and Mrs. E. R. Dunn.

My principal occupation has been work on a revision of the African geckos, and a certain amount of time assisting in the preparation of reports on the mammals and birds resulting from my 1938–1939 visit to Central and East Africa. A couple of weeks have been devoted to proof reading.

Mr. Shreve has undertaken the determination of practically all New World material received, principally from Peru, Ecuador, the Canal Zone, and Mexico, and reported on the novelties which he has discovered. Our excellent student aid has carried out the routine replenishment with alcohol of all jars of amphibia, I have superintended and assisted him in the task of expanding the lizard collection which was made possible by the installation of a series of cupboards the year before.

The annual census of the collection follows:

	Genera	*Species and Subspecies*	*Gain in Genera*	*Gain in Species*
Rhynchocephalia	1	1	0	0
Crocodilia	8	24	0	0
Chelonia	61	223	0	1
Lacertilia	289	2,277	0	20
Ophidia	310	1,617	5	24
Amphibia	236	1,684	8	13
Totals	905	5,826	13	58

REPORT ON INVERTEBRATE PALEONTOLOGY

By Percy E. Raymond

The Curator made four short collecting trips during the year, two to eastern Pennsylvania and two to northwestern Vermont. The most important collection obtained was from the Mid-Pennsylvanian Mill

Creek limestone at Wilkesbarre, Pa. This locality is of interest because it is the most eastern outcrop of marine Upper Carboniferous strata in this country, and because it is the type locality for certain species never yet found elsewhere. The locality had been lost sight of, but was rediscovered with the assistance of Professor Bradford Willard of Lehigh University. A good suite of Martinsburg fossils was obtained near Hamburg, Pa., and a few rare fossils collected from the Cambrian and Ordovician of northwestern Vermont.

During the winter, the Curator began a study of the American Carboniferous non-marine crustaceans, which has not advanced far beyond the initial stage of cleaning the specimens, a most time-consuming process. Considerable time was also devoted to the preparation and study of the numerous fragmentary aquatic arthropods which Dr. F. M. Carpenter found associated with insects in the Permian of Oklahoma.

Dr. Otto Hass, who spent several months as a guest of the Museum during 1940, was good enough to rearrange our collections of Mesozoic brachiopods and corals during his stay.

Accessions: There have been received by donation during the year: two drawers of Cretaceous fossils from the Laramie River valley in northern Colorado, from Miss Julia Barbour; 21 cretaceous gastropods from near Jackson, Wyoming, from Miss Irma Rice of Honolulu; 6 Lower Ordovician trilobites, all types, from the Lower Ordovician near Beatty, Nevada, from Mr. Samuel Holliday; a crustacean from the Lower Pennsylvanian of the mazon Creek area, Illinois, from Mr. Floyd Werner; and a small lot of mollusca from the Gatum Dug Out Panama Canal, from Mr. Nelson C. Magoon. By collection, other than those mentioned above, there have been received three drawers of Arthropods from the Lower Permian of Noble County, Oklahoma, gathered by Dr. F. M. Carpenter and Gilbert O. Raasch, and several specimens of Eocene and Miocene invertebrates obtained by Dr. T. E. White at the Thomas Farm, 8 miles north of Bell, Gilchrist Co., Florida. A few Ordovician and Devonian fossils were purchased from Ward's, and another collection of Jurassic cephalopods from the Valley of Viñales, Cuba, came through the agency of Dr. Luis Howell Rivero.

REPORT ON VERTEBRATE PALEONTOLOGY

By Alfred S. Romer

Field work during the past year has been in the main a continuation of projects mentioned in the last report. At that time a party consisting of Assistant Preparator R. V. Witter and Messrs. F. C. Whitmore and R. M. White was engaged in exploration for fossil mammals in the Uinta basin of eastern Utah. Their work was greatly aided by advice and guidance from Curator J. LeRoy Kay and Dr. John Clark of the Carnegie Museum. The party returned in September with a valuable collection from these beds, obtained partly from previously known fossil areas but in greater measure from a new quarry discovered by them near Leota. Much of the material has been loaned to Professor W. B. Scott for study in connection with his monograph of the Uinta fauna.

Last winter the Director and Assistant Curator T. E. White again engaged in paleontological work in Florida. For the third successive season excavations were made at the Miocene Thomas Farm locality in Gilchrist County. The law of diminishing returns appears not to apply to this site, which continues increasingly to yield valuable material and is without question the most important Tertiary fossil deposit in the eastern half of the country. The Florida Geological Survey rendered valuable assistance during the current season in studying the stratigraphy of the occurrence; Mr. Clarence Simpson spent several days boring test holes to determine the extent of the fossiliferous area.

Collections were also obtained from a number of Florida Pleistocene localities. From Vero Beach representative materials were presented by Mr. Waldo Sexton and a series of teeth by Mr. Frank Ayers: further specimens were obtained by purchase. A series of specimens collected at Itchucknee Spring Run by students of the Department of Biology of the University of Florida was presented to the Museum; thanks are due to Dr. A. F. Carr and Messrs. Beck, Cnabbel, Dickinson, Marchand and McClane. Mr. Lewis P. Marchand donated a collection from Crystal Springs Run, Pasco County, which contained bird material as well as mammal teeth. A visit to the Pliocene Bone Valley

area met with a cordial reception from those locally interested, and the donation of many specimens. A sizeable collection including a porpoise skull, a gigantic sloth claw, etc., was given by Messrs. H. C. Hudson, Manager and W. N. Simpson of the American Agricultural Chemical Company of Pierce, Florida. Mr. E. H. Dudley of Mulberry was instrumental in securing a valuable dog skull and Mr. W. H. Taylor of the Coronet Phosphate Company of Plants City donated specimens of mastodon and sea cow.

Mr. Harry Damron, graduate student in geology, reported to us during the winter the occurrence of bones in the red shales of the Hinton District of West Virginia. This was investigated during the spring vacation by the Curator and Mr. R. V. Witter. The material included abundant although fragmentary amphibian remains as well as fish specimens. The horizon is the Mauch Chunk group of the Mississippian, and these fossils are thus by far the oldest amphibians from continental North America.

The 1939 trip to Texas revealed a deposit which promised to yield morphologically valuable remains of the primitive amphibian *Cricotus*. We are indebted to the Marsh Fund of the National Academy of Science and the Sigma XI research fund for grants which will allow Mr. Witter to excavate in this locality during the coming autumn.

In addition to the results of field activities, various other accessions have been made to the collections. Dr. and Mrs. Henry S. Clapp of the University of New Hampshire have donated a small but interesting collection of Scaumenac Bay fishes, and several acanthodian sharks from the same locality have been purchased. A collection of Jurassic fishes from Cuba has been purchased through the agency of Dr. Luis Howell Rivero. Some Lower Eocene material of interest was obtained from Mr. William S. Stein, while from the Cleveland Museum of Natural History have come an excellent specimen of *Cladoselache* and a paratype of a new fish being described by Dr. D. Dunkle of that institution. Among specimens sent out as exchanges may be noted a skeleton of *Mesohippus barbouri* for the Museum of Paleontology of the University of Kansas and an *Edaphosaurus* skeleton for the U. S. National Museum.

Mr. Nelson has continued to enrich the exhibition series with excellent skeleton panel mounts. New forms added to the exhibits include *Ophiacodon,* a primitive pelycosaur, and *Pseudocynodictis,* an early

canid; the La Brea sabretooth and dire wolf have been remounted in more attractive form. During the year Mr. Olsen has been engaged in the preparation of Florida material. Mr. Witter has prepared various Texas specimens including an *Eryops* with an unusually complete vertebral column which will make a good mounted skeleton, and the skull and brain cast of *Edops*, a large amphibian from the redbeds.

Research activities have been numerous during the year. The Curator has been engaged in a number of investigations in Paleozoic fishes and early tetrapods and with the aid of Miss Wright has made considerable progress in the preparation of the bibliography of European vertebrate paleontology, and revision of Williston's "Osteology of the Reptiles". In addition to studies on the Florida material, Dr. T. E. White has continued work on Brazilian cynodonts and the Cuban Jurassic fishes and (in collaboration with Dr. D. H. Dunkle) a revision of the Leptolepidae. Mr. H. Seton has been engaged in the study of Lower Eocene material, particularly some interesting if fragmentary remains of a number of small, rare forms. Dr. Edinger has completed the study of an interesting pterodactyl braincase in the Museum collections and is studying, in collaboration with the Curator, the brain and ear regions of several early reptiles and amphibians. With the support of a grant from the Penrose Fund of the Geological Society of America she has begun an investigation of the brain casts in the horse evolutionary series; the American Museum of Natural History, through the good offices of Dr. G. G. Simpson, has aided greatly by supplying a number of casts.

Dr. T. E. White, Research Assistant since 1932, has been made Assistant Curator of Fossil Mammals.

During the Christmas holidays the members of the department acted as hosts to the vertebrate paleontologists of the country. During the meeting the group, which had formed a section of the Paleontological Society, organized as the Society of Vertebrate Paleontology, with the Curator as president. This pleasant visit is to be repeated since the Society will meet in Boston in association with the Geological Society of America this coming winter.

REPORT ON FOSSIL INSECTS

By F. M. Carpenter

The work of the year has been chiefly on Permian insects. The specimens comprising the large Permian collection secured in Oklahoma last year have been sorted into orders, and the first of a series of papers on them has nearly been finished. This collection has turned out to be even more important and to include more new forms than I expected. Next year I hope to obtain more material from the same beds. Mr. G. O. Raasch, who accompanied me on the collecting trip last year, has finished a long manuscript dealing with the geologic occurrence and environment of the insects and describing some of the associated invertebrates.

A start has been made on the tenth of my papers on the Lower Permian insects of Kansas, the previous part now being in press. In all probability, one additional paper will bring this series to a close. Two revisional studies on Carboniferous insects have been completed, one dealing with the insects from Commentry, France, and the other with specimens from North America.

I was assisted during the year by Mr. G. G. Thiem and Mr. Stanley Cornish, undergraduates in the College, who continued with the preliminary sorting of the collection of Manitoban amber. This routine work will be completed in the course of a few months, after which actual study and description of the insects can be made.

Specimens in the Haren collection of Baltic amber insects have been studied during the year by Dr. C. P. Alexander (Tipulidae), Dr. F. M. Hull (Syrphidae), Dr. R. L. Usinger (Hemiptera), Dr. Alfred Emerson (Isoptera), and Dr. A. Petrunkevitch (Arachnida). Up to the present time, descriptions of 44 new species based on the Haren amber collection have been published, although less than one-tenth of the specimens have been studied.

REPORT ON THE FISHES

By W. C. Schroeder

The recataloguing of the collection was increased by 16 families, 238 genera and 642 species, bringing the total for the past five years to 138, 788 and 2527, respectively, representing about one-fifth of the entire collection. Thanks are again due to Miss Helene M. Robinson and Mr. Robert Sceery and in the late winter, to Mr. E. J. Harris for their assistance in making this progress possible.

Material was received from the following: Messrs. W. J. Clench and C. M. Cooke, II, Hawaiian Islands; Mr. E. E. Firth, Banquereau; Mr. Richard Foster, North Carolina, Florida, Bahamas; Dr. S. F. Hildebrand, 18 species of anchovies from the West Indies and Panama; Mr. Arthur Loveridge, Nyassa; Mr. Pedro De Mesa, Philippine Islands; Dr. G. H. Parker, New England; Mr. W. C. Schroeder, New England; Mr. W. Herbert Schroeder, Pitcairn Island and South Polar region; Commander E. H. Smith, east coast of Greenland; Mr. Stewart Springer, several sharks from Florida. A friend of the department purchased several sharks from Japan and Mr. Richard W. Foster obtained the skin of a Mako shark from Florida.

A number of visitors made use of the collection for study, including Mr. and Mrs. M. B. Trautman, Ohio State University; Mr. B. C. McCabe, Springfield College; Mr. Nevin Scrimshaw, University of Michigan; and Dr. A. E. Parr, Yale University.

Several sizeable collections which had been loaned for study and identification were returned during the year. These include anchovies returned by Dr. S. F. Hildebrand; a collection made by the Harvard-Primate Expedition in Siam, returned by Dr. H. M. Smith; and a miscellaneous lot of West African fishes returned by Dr. Leonard P. Schultz. The one-half of the *Atlantis* 1938–1939 Cuban collection which had been retained by the University of Havana was received here in December, and the entire collection of fishes is now intact.

A number of loans were made and several received including a large assortment of sharks from the United States National Museum through the kindness of Dr. Schultz. This and other shark material recently received is being studied by Dr. H. B. Bigelow and myself in the preparation of the account of the Elasmobranchs to be published

in "Fishes of the Western Atlantic". Since the first of the year Mr. Eugene Fisher has spent part of his time making the shark drawings for this publication.

The weeding out of worthless material continued to yield enough glass containers to take care of new accessions and enough space in the trays to allow for future expansion. Many desirable uncatalogued specimens were located in this process including collections made by L. Agassiz, A. Agassiz, A. Garrett, and by the Hassler, Thayer and Blake Expeditions.

REPORT ON THE COELENTERATES AND SPONGES

By Elisabeth Deichmann

The work has progressed uninterruptedly in direct continuation of the lines followed in 1939–1940. With the assistance of Mr. Levine the sponge collections in the basement have been attended to. By reshuffling the jars and discarding a lot of old, poor material, it has been possible to gain so much room that the alcoholic part of the Alcyonarian collections now can be transferred to the basement and thereby allow a much needed expansion of the dry collections.

The cabinets in the basement which contained the sea-anemones and stony corals, preserved in alcohol, have been overhauled and a large portion of old material which was not properly labelled has been discarded while the remaining part has been transferred to more suitable containers. Considerable space has thereby been gained so that we now will be able to receive quite sizeable additions to the collections without fear of overcrowding. Also the collections of hydrozoa have been attended to and all the unidentified material from the West Indian area has been collected to be sent to Dr. C. McLean Fraser, University of British Columbia, to be included in his revision of the West Indian deep water hydroids.

The worms, bryozoans and tunicates have also been shuffled around thereby making room for the collections of parasitic worms which hitherto have been housed on the fifth floor.

Dr. L. W. Hutchins of Ohio State University has made two visits to examine the collections of Bryozoans. All the material from the

West Indian region and Atlantic seaboard have been segregated and will be shipped to Ohio to be used in his forthcoming revision of the bryozoans of the western Atlantic.

Dr. F. G. Walton Smith of the University of Miami has visited the Museum to examine the collections of alcyonarians in connection with his work on the coelenterates of the Florida coasts.

The report on the "Atlantis" holothurians published during the winter and the report on the "Atlantis" antipatharians is now being finished. Almost all of Pourtales' material from the "Blake" expeditions has been re-discovered and the report thus rounded out to include all the species known from the West Indian waters; with one or two exceptions material of all the species has been available in the M. C. Z. and the few forms in the British Museum may possibly turn out to be synonyms.

The first volume of the Holothurians of the Panamic region is now published and the second volume is well under way to be completed. The Molpadonia of the "Albatross" cruises to the Philippines has been finished and forms a complete monograph on the Into-Pacific members of this order.

From Copenhagen has been received word that the first volume of the translation of Herluf Winge: Mammalian Genera, made in collaboration with Dr. G. M. Allen has been published and a copy is on its way, while second proof has been read on the second volume and first proof to the third.

From Mr. Herbert Schroeder has been received two large jars with holothurians, worms, sipunculids and tunicates from the South Pole. From the Dutch East Indies, Hawaii and Philippines have been received stony and horny corals through Dr. D. Fairchild, Mr. W. J. Clench and Mr. P. de Mesa. Mr. F. E. Ricketts has sent a number of horny corals from Lower California and Messrs. R. W. Foster and J. H. Huntington has sent some seafans from North Bimini Island, Bahamas. An interesting collection of Brazilian stony corals has been received from Mr. A. Oliveira and L. I. Price.

In spite of the war some correspondence has been kept up with European countries and various scientific papers have been received. With other American institutions the usual interchange of letters and material has taken place, particularly with the United States National Museum.

REPORT ON CRUSTACEA AND WORMS

By Fenner A. Chace, Jr.

Crustacea: During the past year, apart from a certain amount of time given up to tutorial duties in the Department of Biology, the Curator has been occupied with reports on two sizable collections: the African decapod Crustacea collected by A. Loveridge in 1939, to which report was appended a check-list of the freshwater crabs of Africa, and the Galatheidea of the Harvard-Havana expeditions, which entailed a revision of our entire galatheid collection in pursuance of the policy outlined in the report for the previous year.

Accessions for the year, considering the fact that there have been no extensive marine expeditions to swell their total, have been highly gratifying, and the number of individual donors has again increased over the peak reached in the preceding year. Most noteworthy of the collections received include one of 86 lots brought back by W. J. Clench from the Hawaiian Islands and Midway Island, those from the latter locality having been collected by P. Spicer; two separate shipments, totalling 49 lots, from P. de Mesa in the Philippines; and a collection of 33 lots taken in the Bimini Group of the Bahamas by R. W. Foster and J. H. Huntington. Thanks are hereby extended to the following donors for welcome series: R. T. Abbott, Prof. N. Banks, Dr. J. C. Bequaert, Dr. P. J. Bermudez, Miss E. B. Bryant, Dr. E. Deichmann, Dr. D. G. Fairchild, A. G. B. Fairchild, E. Folk, R. W. Foster, Dr. L. Howell Rivero, A. Loveridge, J. Miller, E. F. Ricketts, W. E. Schevill, W. C. Schroeder, W. H. Schroeder, Dr. H. van der Schalie, Dr. J. H. Welsh and Dr. T. E. White. A relatively large collection of duplicate crabs has been sent to the U. S. National Museum and an exchange shipment in return is expected shortly. Some important type specimens of crayfish have also been received from the University of Michigan Museum of Zoology in exchange for a publication.

The catalogued accessions from all of these sources amount to 2,092 specimens in 265 lots, not including the Galatheidea of the Harvard-Havana expeditions which have not been completely catalogued as yet.

Worms: Thanks are expressed to the following donors from whom specimens have been received: Dr. J. C. Bequaert, W. J. Clench, G. B. Fairchild, R. W. Foster, A. Loveridge, J. Miller, W. C. Schroeder, W. H. Schroeder and Dr. T. E. White.

REPORT ON THE LIBRARY

By W. E. Schevill

Although our budget allowance was reduced again, the library has so far managed to continue to grow and to improve its facilities for research. Some relief was afforded by the sale of duplicates, including some Audubon aquatints, but sales were not as heavy as in previous years.

For the year ending June 30, 1941, the net increase in volumes and pamphlets was 1185 and 1852 respectively, increasing our recorded totals to 82,672 volumes and 104,490 pamphlets. 5866 books were borrowed for use outside the library, 111 of which were interlibrary loans; some 3000 were used in the library. Only 628 items were bound this year, at a cost of $976.19. Efforts were continued to improve the cataloguing, the systems being adapted to give the reader more help in locating books.

Miss Marguerite L. Harding resigned at the end of January, after a little more than three and a half years with us. In that time she showed herself to be a reliable worker, successful in integrating her sound library training with the somewhat irregular and informal practices of the M. C. Z. Although her time was up January 31, she voluntarily stayed on well into February to help break in the new assistant. Miss Harding's departure is definitely the library's loss.

Miss Ruth Moses filled in the rest of the year. Mrs. Frazier bore the brunt of the responsibility after Miss Harding left, and looked after a number of loose ends. This spring Miss Gold substantially completed the main work for the Wilson Union List of Serials, and is now engaged in our more usual duties.

It is most unfortunate that reductions, not only in the usual budget for operating expenses, but also in the funds available for salaries, have obliged us to reduce the library force. We begin 1941–1942 with only three assistants. This leaves us seriously understaffed compared with other less active libraries in the University.

REPORT ON THE GEOLOGICAL MUSEUM

By Edward Clarke Cabot

In the course of the last year a catalogue has been nearly completed of all the objects in the Geological Museum. The catalogue has a three way filing system by which a specimen may be found under its geologic name, its geographical location and its location in the museum cases. A total of 3450 specimens are numbered leaving a certain number of specimens still to be numbered and catalogued.

Because of the stress on National Defence during the year an exhibit of strategic minerals was arranged using the list of minerals as defined by the 76th Congress of the United States. This exhibit shows the lack of these minerals in this country and the availability of them in South America and the British Empire.

This summer I collected granitic and sedimentary bombs in the Sunset Crater area near Flagstaff Arizona for the Museum. These bombs are angular and unlike the normal rounded bombs. They will be on exhibition this winter.

I also brought to a conclusion this summer my work on the Tertiary embayments of the Picuris Prong, near Taos, N. M., and hope to have this material in shape for publication by the end of the winter.

PUBLICATIONS FOR THE YEAR 1940–1941

(1 August, 1940—31 July, 1941)

Museum of Comparative Zoölogy

Publications: The following have been printed during the year.

BULLETIN:—

Vol. LXXXVII

No. 1. Revision of the African Snakes of the Genera Dromophis and Psammophis. By Arthur Loveridge. 69 pp. October, 1940.

No. 2. New Oriental Cicadidae in the Museum of Comparative Zoölogy. By Gaines Kan-Chih Liu. 46 pp. 7 pls. November, 1940.

No. 3. Mammal and Bird Collections of the Asiatic Primate Expedition. Introduction, by Harold J. Coolidge, Jr. Mammals, by Glover M. Allen and Harold J. Coolidge, Jr. Birds from Northern Siam by James C. Greenway, Jr. Birds from Mt. Kina Balu, North Borneo, by James L. Peters. 90 pp. December, 1940.

No. 4. The Butterflies of the Satyrid Genus Coenonympha. By Demorest Davenport. 136 pp. 10 pls. January, 1941.

No. 5. Revision of the African Lizards of the Family Amphisbaenidae. By Arthur Loveridge. 100 pp. March, 1941.

No. 6. The Antennae of Lepidopterous Larvae. By V. G. Dethier. 52 pp. 9 pls. March, 1941.

No. 7. Notes on the Snake Genus Anomalepis. By Emmett Reid Dunn. 15 pp. March, 1941.

Vol. LXXXVIII

No. 1. Additions to the Rheophilous Mollusk Fauna of the Congo Estuary. By Joseph C. Bequaert and W. J. Clench. 13 pp. 2 pls. April, 1941.

No. 2. Millipeds Collected in Puerto Rico and the Dominican Republic by Dr. P. J. Darlington in 1938. By H. F. Loomis. 63 pp. May, 1941.

No. 3. Birds of Lower Amazonia. By Ludlow Griscom and James C. Greenway, Jr. 263 pp. June, 1941.

MEMOIRS:—

Vol. LIV

No. 6. The Indo-Chinese Forest Ox or Kouprey. By Harold J. Coolidge, Jr. 111 pp. 11 pls. August, 1940.

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